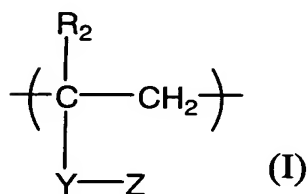


CLAIMS

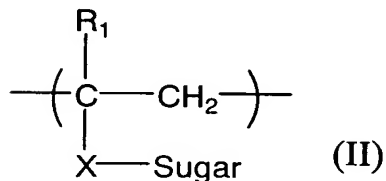
1. A carrier for nucleic acid molecule delivery comprising a saccharified copolymer having a repeating unit (A) having a cationic group, a repeating unit (B) containing sugar and a repeating unit (C) having a hydrophobic substituent.

2. The carrier for nucleic acid molecule delivery according to claim 1 wherein the repeating unit (A) having the cationic group is represented by the general formula (I):



wherein  $\text{R}_2$  represents H or  $\text{CH}_3$ ; Y represents  $-\text{C}(=\text{O})\text{O}-(\text{CH}_2)_{n_y}-$ ,  $-\text{OC}(=\text{O})-(\text{CH}_2)_{n_y}-$ ,  $-\text{OC}(=\text{O})-(\text{CH}_2)_{n_y}-\text{C}(=\text{O})$  or  $-\text{CONH}-(\text{CH}_2)_{n_y}-$  and  $n_y$  represents an integer of 1 to 10; and Z represents  $-\text{NR}_3\text{R}_4$  ( $\text{R}_3$  and  $\text{R}_4$  are the same or different and represent hydrocarbon groups having 1 to 10 carbon atoms),  $-\text{N}^+\text{R}_5\text{R}_6\text{R}_7$  ( $\text{R}_5$ ,  $\text{R}_6$  and  $\text{R}_7$  are the same or different and represent hydrocarbon groups having 1 to 10 carbon atoms) or a nitrogen-containing heterocyclic group.

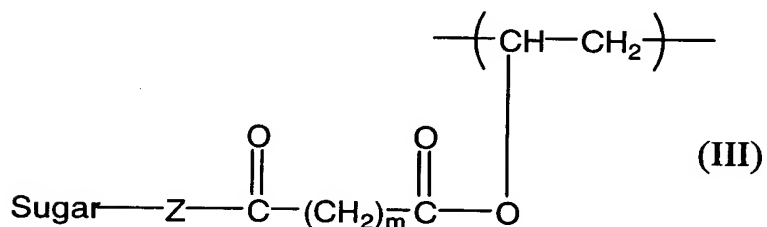
3. The carrier for nucleic acid molecule delivery according to claim 1 wherein the repeating unit (B) containing the sugar is represented by the general formula (II):



wherein  $\text{R}_1$  represents H or  $\text{CH}_3$ ; Sugar represents a sugar residue obtained by removing one  $\text{NH}_2$  from a sugar (in the cases of monosaccharide, disaccharide or polysaccharide where the sugar is

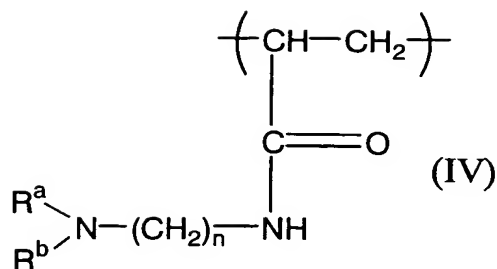
bound at an amino group in amino sugar) or removing one OH from the sugar (in the cases of monosaccharide, disaccharide or polysaccharide where the sugar is bound at a hydroxyl group in saccharide); and X represents  $-C(=O)Z^1$ ,  $-C(=O)O-R_a-$ ,  $-CONH-$ ,  $-CONH-R_b-$ ,  $-OC(=O)-R_c-C(=O)Z^1$  or  $-Ph-R_d-Z^1$  wherein  $R_a$  represents  $-Ph-O-$  or  $-(CH_2)_{n_a}-O-$  and  $n_a$  represents an integer of 1 to 10,  $R_b$  represents  $-Ph-O-$  or  $-(CH_2)_{n_b}-O-$  and  $n_b$  represents an integer of 1 to 10,  $R_c$  represents  $-(CH_2)_{n_c}-$  or  $-(CH_2)_{n_c}-Ph-(CH_2)_{n_c}-$  and  $n_c$  represents an integer of 2 to 18,  $R_d$  represents  $-CH_2-$  or  $-SO_2-$ ,  $Z^1$  represents  $-O-$  or  $-NH-$ , and Ph represents (o-, m- or p-) phenylene group.

4. The carrier for nucleic acid molecule delivery according to claim 3 wherein the repeating unit (B) containing the sugar is represented by the following general formula (III):



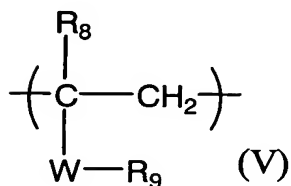
wherein Sugar represents a sugar residue obtained by removing one  $NH_2$  from a sugar (in the cases of monosaccharide, disaccharide or polysaccharide where the sugar is bound at an amino group in amino sugar) or removing one OH from the sugar (in the cases of monosaccharide, disaccharide or polysaccharide where the sugar is bound at a hydroxyl group in saccharide), m represents an integer of 2 to 10, and Z represents O or NH.

5. The carrier for nucleic acid molecule delivery according to any of claims 1 to 3 wherein the repeating unit (A) having the cationic group is represented by the following general formula (IV):



wherein n represents an integer of 1 to 10, and R<sup>a</sup> and R<sup>b</sup> may be the same or different and represent alkyl groups having 1 to 4 carbon atoms.

6. The carrier for nucleic acid molecule delivery according to any of claims 2 to 4 wherein the repeating unit (C) having the hydrophobic substituent is represented by the following formula (V):



wherein R<sub>8</sub> represents -H or -CH<sub>3</sub>; W represents -C(=O)O-, -OC(=O)-, -OC(=O)-(CH<sub>2</sub>)<sub>n<sub>w</sub></sub>-C(=O)O- or -C(=O)NH and n<sub>w</sub> represents an integer of 2 to 18; and R<sub>9</sub> represents a saturated or unsaturated aliphatic or alicyclic hydrocarbon group having 3 to 30 carbon atoms.

7. The carrier for nucleic acid molecule delivery according to any of claims 2 to 6 wherein a molar ratio of the repeating unit (A) + the repeating unit (B) to the repeating unit (C) in the saccharified copolymer is A + B : C = 99.9:0.1 to 0.1:99.9.

8. The carrier for nucleic acid molecule delivery according to any of claims 1 to 7 wherein a weight average molecular weight of the saccharified copolymer is 10,000 to 1,000,000.

9. A transfection reagent or a carrier for gene therapy using the carrier for nucleic acid molecule delivery according to any of claims 1 to 8.
- 5 10. A method of introducing a DNA into a cell characterized by applying the carrier for nucleic acid molecule delivery according to any of claims 1 to 8 and the DNA to the cell.
- 10 11. The method according to claim 10 characterized in that said carrier contains a sugar residue and said cell has a receptor for the sugar residue, and a complex of said carrier and the DNA is incorporated into the cell by being mediated via the receptor.